Format No: CP/TF/01

TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID	:	**CP-2018-01-01-13** **Date: 04-01-18**
Customer	:	Assistant Executive Engineer, Kodigehalli Sub Division, BBMP,
Address	:	Kodigehalli Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains in Kodigehalli Village in Ward No.08
Agency	:	Smt.Shantha Kumari, No199, 4th cross, SSA Road, Kunthi Block, C.N Halli, R.T Nagara post, Bangalore-32
Customer's Reference	:	EE/BTP/W.O/16/2015-16
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	01-01-18
Sample ID No	:	2018-01-01-13 /01
Sample Type	:	Birla Super 53grade
Reference to BIS codes	:	IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification , IS 4031 (Part 1,2 3,4,5, 6,11):1988 IS 4031 Part 1 DETERMINATION OF FINENESS BY DRY SIEVING, Clause 4.4 IS 4031 Part 2, Determination of Fineness by Blaine Air Permeability Method, Clause 5 IS 4031 Part 3, Determination of Soundness, Clause 5,Clause 6 IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5 IS 4031 Part 5, Determination of Initial & Final Setting Time, Clause 5 IS 4031 Part 11,DETERMINATION OF DENSITY , Clause 6
Date of test	:	02-01-18
Environmental Conditions during test	:	Temperature: 26°C Humidity: 72%

Sl.No.	Physical properties	Results	Requirement as per IS 12269: 2013
1	Fineness by dry sieving (%)	1.85	–
2	Finess by Air permeablity method (m^2/kg,Min)	293.4	225m^2/kg, Min
3	Density (gm/cc)	3.12	–
4	Standard Consistency (%)	28.5%	Not specified
5	Initial Setting time	155 minutes	Not less than 30 minutes
6	Final Setting time	275 minutes	Not more than 600 minutes
7	Soundness (Le Chatelier's Method)	1.5mm	Not more than 10 mm

Note:

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All information furnished by Customer/Representative

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R KARTHIK RECHAN
Authorized Signatory
Quality Manager

Assistant Executive Engineer
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

****End of Report****

Format No: CP/TF/01

TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID	:	**CP-2018-01-01-13** **Date: 30-01-18**
Customer	:	Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address	:	Kodigehalli Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains in Kodigehalli Village in Ward No.08
Agency	:	Smt.Shantha Kumari, No199, 4th cross, SSA Road, Kunthi Block, C.N Halli, R.T Nagara post, Bangalore-32
Customer's Reference	:	EE/BTP/W.O/16/2015-16
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	01-01-18
Sample ID No	:	2018-01-01-13 /01
Sample Type	:	Birla Super 53grade
Reference to BIS codes	:	IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification , IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5 IS 4031 Part 6, Determination of Compressive Strength, Clause 6
Date of test	:	02-01-18
Environmental Conditions during test	:	Temperature: 26°C Humidity: 72%

Compressive Strength

Sl.No.	Physical properties	Results	Requirement as per IS 12269: 2013
1	3 Days	29.5N/mm^2	Not less than 27 N/mm^2
2	7 Days	39.5N/mm^2	Not less than 37 N/mm^2
3	28 Days	59.5N/mm^2	Not less than 53 N/mm^2

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Bangalore.

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Format No: CP/TF/01

TEST REPORT ON COARSE AGGREGATES

Lab ID	:	**CP-2018-01-01-13** **Date: 03-01-18**
Customer	:	Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address	:	Kodigehalli Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains in Kodigehalli Village in Ward No.08
Agency	:	Smt.Shantha Kumari, No199, 4th cross, SSA Road, Kunthi Block, C.N Halli, R.T Nagara post, Bangalore-32
Customer Reference	:	EE/BTP/W.O/16/2015-16
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	01-01-18
Sample ID No	:	2018-01-01-13 /02
Sample Type/ Size	:	20mm down size coarse aggregate
Reference to BIS codes	:	IS: 383:2016 (Specification for Coarse and fine Aggregates) IS: 2386 :1963(Part - 1,3,4) RA2011 IS 2386 Part 1: Particle Size and Shape IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption IS 2386 Part 4: Mechanical Properties
Date of test	:	01-01-18

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 20MM DOWN COARSE AGGREGATE:

Total weight taken : 5000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	40 mm	0	0	0	100	100
2	20 mm	429	429	8.6	91.4	90-100
3	10 mm	2435	2864	57.3	42.7	25-55
4	4.75 mm	1833	4697	93.9	6.1	0-10
5	Pan	303	5000	100	0	–

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Format No: CP/TF/01

TEST REPORT ON COARSE AGGREGATES

Lab ID : **CP-2018-01-01-13** **Date: 03-01-18**

Sample ID No : 2018-01-01-13 /02

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	**10.8**	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	**12.4**	
3	Specific Gravity	**2.59**	_
4	Bulk Density(Loose) (Kg/l)	**1.48**	_
5	Bulk Density(Compacted) (Kg/l)	**1.55**	_
6	Water Absorption(%)	**0.23**	_
7	Aggregate crushing Value(%)	**22.0**	Max 30% for Aggregates to be used in concrete for wearing Surface, In case Aggregate Crushing Value Exceeds 30% then the test for ten percent fines should be conducted for Aggregates to be used in concrete other than for wearing Surface.
8	Aggregate Impact Value(%)	**22.9**	30% for Aggregates to be used in concrete for wearing Surface, 45% for Aggregates to be used in concrete other than for wearing Surface.

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Format No: CP/TF/01

TEST REPORT OF FINE AGGREGATE

Lab ID : **CP-2018-01-01-13** **Date: 03-01-18**

Customer : Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.

Address : Kodigehalli Sub Division, BBMP, Bangalore.

Project Name : Improvements to Roads and Drains in Kodigehalli Village in Ward No.08

Agency : Smt.Shantha Kumari, No199, 4th cross, SSA Road, Kunthi Block, C.N Halli, R.T Nagara post, Bangalore-32

Customer's Reference : EE/BTP/W.O/16/2015-16

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 01-01-18

Sample ID No : 2018-01-01-13 /03

Sample Type : Fine Aggregate

Reference to BIS codes : IS 383 : 2016 (Specification for Coarse and fine Aggregates)
IS: 2386 :1963(Part - 1, 3) RA2012
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption

Date of test : 01-01-18

Total weight taken : 1000 grams

Sl.no	Sieve Size	Weight Retained (gms)	Cumulative Weight Retained (gms)	% Cumulative Weight Retained	% Passing	Requirement as per IS 383:2016			
						Grading Zone I	Grading Zone II	Grading Zone III	Grading Zone IV
1	10 mm	0	0	0.0	100.0	100	100	100	100
2	4.75 mm	18	18	1.8	98.2	90-100	90-100	90-100	95-100
3	2.36 mm	185	203	20.3	79.7	60-95	75-100	85-100	95-100
4	1.18 mm	228	431	43.1	56.9	30-70	55-90	75-100	90-100
5	600 micron	187	618	61.8	38.2	15-34	35-59	60-79	80-100
6	300 micron	199	817	81.7	18.3	5-20	8-30	12-40	15-50
7	150 micron	132	949	94.9	5.1	0-10	0-10	0-10	0-15
8	Pan	51	1000	100.0	0.0	---	---	---	---

Result :The tested Sample Conforms to Grading Zone II

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TEST REPORT OF FINE AGGREGATE

Lab ID : **CP-2018-01-01-13** **Date: 03-01-18**

Sample ID No : 2018-01-01-13 /03

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS 383:2016
1	Water Absorption(%)	1.85	–
2	Specific Gravity	2.54	–
3	Material finer than 75 micron(%)	5.0	Uncrushed fine Aggregate Max 3%, Crushed Fine aggregate Max 15%, Mixed Fine aggregate Max 12%, Manufactured Fine aggregate Max 10%

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Authorized Signatory
Quality Manager

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Format No: CP/TF/01

TEST REPORT ON PHYSICAL REQUIREMENTS OF SOLID CONCRETE BLOCKS

Lab ID	:	**CP-2018-01-01-13** **Date: 19-05-18**
Customer	:	Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address	:	Kodigehalli Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains in Kodigehalli Village in Ward No.08
Agency	:	Smt.Shantha Kumari, No199, 4th cross, SSA Road, Kunthi Block, C.N Halli, R.T Nagara post, Bangalore-32
Customer's Reference	:	EE/BTP/W.O/16/2015-16
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	01-01-18
Sample ID No	:	2018-01-01-13 /04
Sample Type/Size	:	Solid concrete blocks of size (400X2000X200)mm
Reference to BIS codes	:	IS : 2185 (Part 1) : 2005(RA 2010) Concrete Masonry Specification Part 1:Hollow and Solid Concrete Blocks (Dimensions -Annex-B, Clause 9.2 and 10 , Block density Annex - C Clause 9.3 and10, Compressive strength Annex -D Clause 9.4 and 10, Water absorption Annex -E Clause 9.5 and 10)
Date of test	:	16-05-18

BLOCK DENSITY:

Sl. No.	Measurement of overall Dimensions of Individual Blocks			Overall Volume of the Block in Cubic Centimetres	Weight of Oven Dried Block in Kilograms to the nearest 10 Gram	Block Density in Kg/cum*10^6	Avg.Block Density in (Kg/cum)	As per IS 2185 (Part 1):2005 (RA 2010)
	Length	Breadth	Height					
	mm	mm	mm	(Cm^3)	Kg	Kg/m^3	Kg/m^3	
1	400	202	202	16322	35.860	2197.1	2202.1	Not less than 1800Kg/m^3
2	401	201	201	16201	35.910	2216.6		
3	400	203	200	16240	35.610	2192.7		

WATER ABSORPTION:

Sl. No.	Wet weight after water absorption	Dry weight (Oven dry)	Water Absorption	Avg.Water Absorption	As per IS 2185 (Part 1):2005 (RA 2010)
	kg	kg	%	%	
1	35.810	34.610	3.47	3.42	Shall not be more than 10% by mass
2	35.790	34.570	3.53		
3	35.830	34.700	3.26		

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Lab ID : **CP-2018-01-01-13** **Date: 19-05-18**

Sample ID No : **2018-01-01-13 /04**

DIMENSION ANALYSIS

Sl.no	Length mm	Breadth mm	Height mm	Requirement as per IS 2185(Part 1):2005
1	401	202	201	Length : ± 5mm Breadth : ± 3mm Height : ± 3mm
2	401	203	202	
3	400	201	200	
4	402	203	201	
5	401	201	202	
6	400	203	200	
7	401	201	201	
8	402	200	202	
9	400	198	200	
10	401	202	201	
11	401	201	201	
12	401	203	200	
13	402	201	202	
14	401	203	203	
15	401	201	203	
16	402	203	201	
17	400	201	202	
18	403	203	201	
19	401	202	203	
20	401	201	201	
Average of 20	**401**	**202**	**201**	

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Lab ID : **CP-2018-01-01-13** **Date: 19-05-18**

Sample ID No : 2018-01-01-13 /04

COMPRESSIVE STRENGTH:

Sl. No.	Size of solid block		Area	Failure Load	Compressive strength	Average Compressive strength
	Length	Breadth				
	mm	mm	(mm^2)	(KN)	N/mm^2	(N/mm^2)
1	401	202	81002	372.7	4.6	4.4
2	401	203	81403	369.1	4.5	
3	400	201	80400	338.7	4.2	
4	402	203	81606	343.1	4.2	
5	401	201	80601	359.7	4.5	
6	400	203	81200	360.4	4.4	
7	401	201	80601	312.4	3.9	
8	402	200	80400	368.1	4.6	

As per IS Requirements (Table 2, Clause 5.1, 5.2 and 9.4)

Compressive strength		
Grade	**Minimum average**	**Minimum Individual units.**
C (5.0)	5.00 N/mm^2	4.00 N/mm^2
C (4.0)	4.00 N/mm^2	3.20 N/mm^2

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Quality Manager

Assistant Executive Engineer
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Bangalore.

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Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : **CP-2018-01-11-07** **Date: 16/01/2018**

Customer : Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.

Address : Kodigehalli Sub Division, BBMP, Bangalore.

Project Name : Improvements to Roads and Drains in Kodigehalli Village in Ward No.08

Agency : Smt.Shantha Kumari, No199, 4th cross, SSA Road, Kunthi Block, C.N Halli, R.T Nagara post, Bangalore-32

Customer's Reference : EE/BTP/W.O/16/2015-16

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 11-01-18

Sample ID No : 2018-01-11-07 /01

Customer ID : M20 Concrete

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 7 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 15/01/2018

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	M20 Concrete	M20	08/01/2018	15/01/2018	149.66 X 151.22 X 151.70	22632	8.204	427.7	18.9	18.2
2	M20 Concrete	M20	08/01/2018	15/01/2018	150.38 X 150.62 X 150.88	22650	8.198	394.1	17.4	
3	M20 Concrete	M20	08/01/2018	15/01/2018	150.23 X 151.46 X 151.05	22754	8.163	416.4	18.3	

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Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : **CP-2018-01-11-07** **Date: 16/01/2018**

Customer : Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.

Address : Kodigehalli Sub Division, BBMP, Bangalore.

Project Name : Improvements to Roads and Drains in Kodigehalli Village in Ward No.08

Agency : Smt.Shantha Kumari, No199, 4th cross, SSA Road, Kunthi Block, C.N Halli, R.T Nagara post, Bangalore-32

Customer's Reference : EE/BTP/W.O/16/2015-16

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 11-01-18

Sample ID No : 2018-01-11-07 /02

Customer ID : M20 Concrete

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 7 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 15/01/2018

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	M20 Concrete	M20	08/01/2018	15/01/2018	149.63 X 150.44 X 150.72	22510	8.214	535.7	23.8	23.5
2	M20 Concrete	M20	08/01/2018	15/01/2018	151.25 X 149.68 X 151.38	22639	8.198	536.5	23.7	
3	M20 Concrete	M20	08/01/2018	15/01/2018	150.22 X 151.63 X 151.42	22778	8.163	521.6	22.9	

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TEST RESULTS OF GRADATION FOR WMM

Lab ID	:	**CP-RW-2018-01-16-15** **Date: 18-01-18**
Customer	:	Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address	:	Kodigehalli Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains in Kodigehalli Village in Ward No.08
Agency	:	Smt.Shantha Kumari, No199, 4th cross, SSA Road, Kunthi Block, C.N Halli, R.T Nagara post, Bangalore-32
Customer Reference	:	EE/BTP/W.O/16/2015-16
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	16-01-18
Sample ID No	:	2018-01-16-15/01
Type of Mix	:	WMM (Wet Mix Macadam)
Date of test	:	16-01-18
Oven Dry Weight	:	11000 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	% Cumulative Weight Retained	% Passing	Spec.I.Vide Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	325	325	3.0	97.0	95-100
22.4	2264	2589	23.5	76.5	60-80
11.2	2172	4761	43.3	56.7	40-60
4.75	2267	7028	63.9	36.1	25-40
2.36	1618	8646	78.6	21.4	15-30
0.6	628	9274	84.3	15.7	8-22
0.075	1368	10642	96.7	3.3	0-5

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TEST REPORT OF AGGEGRATE IMPACT VALUE
IS: 2386 Part IV

Lab ID	:	**CP-RW-2018-01-16-15**	**Date: 18-01-18**
Customer	:	Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.	
Address	:	Kodigehalli Sub Division, BBMP, Bangalore.	
Project Name	:	Improvements to Roads and Drains in Kodigehalli Village in Ward No.08	
Agency	:	Smt.Shantha Kumari, No199, 4th cross, SSA Road, Kunthi Block, C.N Halli, R.T Nagara post, Bangalore-32	
Customer Reference	:	EE/BTP/W.O/16/2015-16	
Source of Sample	:	Sample supplied by Agency	
Sample Condition	:	Satisfactory	
Date of Receipt	:	16-01-18	
Sample ID No	:	2018-01-16-15/01	
Type of Mix	:	Coarse Aggregate for WMM (Wet Mix Macadam)	
Date of test	:	16-01-18	

Sl.No	Particulars of observations	Index	TEST 1	TEST 2
1	Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve)	A	302.6	302.6
2	Weight of fraction passing 2.36mm sieve After giving 15 blows	B	73.9	74.0
3	weight of fraction retained 2.36mm sieve After giving 15 blows	C	228.5	228.3
4	Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made.	A-(B+C)	0.2	0.3
5	Aggregate impact value	(B/A)*100	24.4	24.5
6	Aggregate impact value (Mean of two tests)	Pecentage	24.4	

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DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE(IS 2386 (Part 1) 1963 (RA 2007)

Lab ID	:	**CP-RW-2018-01-16-15** **Date: 18-01-18**
Customer	:	Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address	:	Kodigehalli Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains in Kodigehalli Village in Ward No.08
Agency	:	Smt.Shantha Kumari, No199, 4th cross, SSA Road, Kunthi Block, C.N Halli, R.T Nagara post, Bangalore-32
Customer Reference	:	EE/BTP/W.O/16/2015-16
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	16-01-18
Sample ID No	:	2018-01-16-15/01
Type of Mix	:	Coarse Aggregate for WMM (Wet Mix Macadam)
Date of test	:	16-01-18

Result:

Index	Percentage of Flakiness and Elongation Index	Secified limits as per MORTH specification table 400-12
Flakiness Index	12.5%	Combined Flakiness & Elongation Index for WMM is Maximum 35%
Elongation Index	13.1%	
Combined Flakiness and Elongation Index for WMM	25.6%	

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Format No: CP/TF/01

TEST REPORT ON BITUMEN

Lab ID	:	**CP-2018-01-16-04** **Date: 17-01-18**
Customer	:	Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address	:	Kodigehalli Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains in Kodigehalli Village in Ward No.08
Agency	:	Smt.Shantha Kumari, No199, 4th cross, SSA Road, Kunthi Block, C.N Halli, R.T Nagara post, Bangalore-32
Customer's Reference	:	EE/BTP/W.O/16/2015-16
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	16-01-18
Sample ID No	:	2018-01-16-04/01
Sample Type	:	Bitumen
Reference to BIS codes	:	IS: 1201-1220(1978) (Reaffirmed-2004)
Date of test	:	16-01-18

Test Results

Sl.no	Name of Test	Result	Requirements as per IS:73-2013
1	Penetration at 25°C , in 1/10th mm	**66**	60 to 70
2	Softening Point, °C	**42.6**	Min. 40°C
3	Ductility, cm	**98**	Min. 75cm
4	Flash point, °C	**233**	Min. 220°C
	Fire point, °C	**247**	

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TEST RESULTS OF GRADATION FOR SDBC
IS 2386 (Part 1) 1963 (RA 2007)

Lab ID	:	**CP-RW-2018-01-22-12** **Date: 24-01-18**
Customer	:	Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address	:	Kodigehalli Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains in Kodigehalli Village in Ward No.08
Agency	:	Smt.Shantha Kumari, No199, 4th cross, SSA Road, Kunthi Block, C.N Halli, R.T Nagara post, Bangalore-32
Customer Reference	:	EE/BTP/W.O/16/2015-16
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	22-01-18
Sample ID No	:	2018-01-22-12/01
Type of Mix	:	SDBC-Plant (Semi Dense Bituminous Concrete)
Date of test	:	22-01-18
Weight of Sample	:	5000 Grams

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-15(grading-2)
13.2	0	0	0.0	100.0	100
9.5	415	415	8.3	91.7	90-100
4.75	2182	2597	51.9	48.1	35-51
2.36	1040	3637	72.7	27.3	24-39
1.18	523	4160	83.2	16.8	15-30
0.3	340	4500	90.0	10.0	9-19
0.075	172	4672	93.4	6.6	3-8
PAN	328	5000	100.0	0.0	0

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PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR SEMI DENSE BITUMINOUS CONCRETE

Lab ID	:	**CP-RW-2018-01-22-12** **Date: 25-01-18**
Customer	:	Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address	:	Kodigehalli Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains in Kodigehalli Village in Ward No.08
Agency	:	Smt.Shantha Kumari, No199, 4th cross, SSA Road, Kunthi Block, C.N Halli, R.T Nagara post, Bangalore-32
Customer Reference	:	EE/BTP/W.O/16/2015-16
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	22-01-18
Sample ID No	:	2018-01-22-12/01
Type of Mix	:	SDBC (Semi Dense Bituminous Concrete)
Date of test	:	22-01-18

Physical Requirements fo Coarse Aggregate for Semi Dense Bituminous Concrete

Property	Test	Result	Specification	Method of Test
Partical Shape	Flakiness Index	11.2	Combined Flakiness & Elongation Index for DBM is Maximum 35%	IS:2386 Part I
	Elongation Index	10.6		
Strength	Aggregate Impact Value	226	Maximum 30%	IS:2386 Part IV
Specific gravity	Specific gravity	2.66	Maximum 2.7	IS:2386 Part III
Water Absorption	Water Absorption	0.28	Maximum 2%	IS:2386 Part III

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TESTS RESULTS ON STABILITY OF MIX

Lab ID	:	**CP-RW-2018-01-22-12** **Date: 25-01-18**
Customer	:	Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address	:	Kodigehalli Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains in Kodigehalli Village in Ward No.08
Agency	:	Smt.Shantha Kumari, No199, 4th cross, SSA Road, Kunthi Block, C.N Halli, R.T Nagara post, Bangalore-32
Customer Reference	:	EE/BTP/W.O/16/2015-16
Source of Sample	:	Hot Mix Plant, Bangalore
Sample Condition	:	Satisfactory
Date of Receipt	:	22-01-18
Sample ID No	:	2018-01-22-12/01
Type of Mix	:	SDBC (Semi Dense Bituminous Concrete)
Date of test	:	22-01-18

The results of the tests conducted on the Semi Dense Bituminous Concrete mix sample are as follow

Sl.No	Particulars of observations	TEST 1	TEST 2	Secified limits as per MORTH specification table 500-16
1	Marshal Stability at 60°C, KN	10.55	10.45	8.2KN(min)
2	Marshal flow at 60°C, mm	3.27	3.29	2-4
3	Percent air Voids	4.34	4.25	3-5
4	Percent Voids in mineral Aggregate(VMA %)	13.91	13.94	13-15
5	Percent Voids filled with Bitumen(VFB %)	70.32	71.12	65-75
6	Density, g/cc	2.25	2.24	–

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TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

Lab ID	:	**CP-RW-2018-01-22-12** **Date: 25-01-18**
Customer	:	Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address	:	Kodigehalli Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains in Kodigehalli Village in Ward No.08
Agency	:	Smt.Shantha Kumari, No199, 4th cross, SSA Road, Kunthi Block, C.N Halli, R.T Nagara post, Bangalore-32
Customer Reference	:	EE/BTP/W.O/16/2015-16
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	22-01-18
Sample ID No	:	2018-01-22-12/01
Type of Mix	:	SDBC (Semi Dense Bituminous Concrete)
Date of test	:	22-01-18

Type of Binder	:	60/70
% of Binder Used	:	5.0%
Weight of Aggregate	:	200.0 gm
Weight of Binder	:	10.0 gm
Temperature of water bath	:	40°C

No of test	Retained Stripping Percentage	Stripping Percentage	Average Retained Stripping Percentage	Secified limits as per MORTH specification table 500-8
1	99.0	1.0	98.8	Minimum Retained Coating 95%
2	98.5	1.5		
3	99.0	1.0		

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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR SDBC (IS 2386:(Part 1) 1963 (RA2011)

Lab ID	:	**CP-RW-2018-01-29-12**	**Date: 30-01-18**
Customer	:	Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.	
Address	:	Kodigehalli Sub Division, BBMP, Bangalore.	
Project Name	:	Improvements to Roads and Drains in Kodigehalli Village in Ward No.08	
Agency	:	Smt.Shantha Kumari, No199, 4th cross, SSA Road, Kunthi Block, C.N Halli, R.T Nagara post, Bangalore-32	
Customer Reference	:	EE/BTP/W.O/16/2015-16	
Source of Sample	:	Sample supplied by Agency	
Sample Condition	:	Satisfactory	
Date of Receipt	:	29-01-18	
Sample ID No	:	2018-01-29-12/01	
Type of Mix	:	SDBC (Semi Dense Bituminous Concrete)	
Date of test	:	29-01-18	

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	A	505	505
2	Weight of the sample After extraction	B	478	477
3	Bitumen percentage	$\frac{A-B}{A} \times 100$	5.35	5.54
4	Average percentage	%	5.4	

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Lab ID : **CP-RW-2018-01-29-12** **Date: 30-01-18**

Sample ID No : **2018-01-29-12/01**

AFTER EXTRACTION(Trail-1)

Weight of Sample(gm) : 478

IS Sieve Size(mm)	Weight Retained(gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-15(grading-2)
13.2	0	0	0	100.0	100
9.5	31	31	6.49	93.5	90-100
4.75	213	244	51.05	49.0	35-51
2.36	63	307	64.23	35.8	24-39
1.18	39	346	72.38	27.6	15-30
0.3	71	417	87.24	12.8	9-19
0.075	34	451	94.35	5.6	3-8
PAN	27	478	100.00	0.0	0

AFTER EXTRACTION(Trail-2)

Weight of Sample(gm) : 477

IS Sieve Size(mm)	Weight Retained(gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-15(grading-2)
13.2	0	0	0	100.0	100
9.5	29	29	6.08	93.9	90-100
4.75	215	244	51.15	48.8	35-51
2.36	62	306	64.15	35.8	24-39
1.18	41	347	72.75	27.3	15-30
0.3	66	413	86.58	13.4	9-19
0.075	32	445	93.29	6.7	3-8
PAN	32	477	100.00	0.0	0

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